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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/021,423	11/30/2001	Gopal Raghavan	PD-200035 (BOE 0117 PA	2069

7590 07/07/2003  
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EXAMINER

NGUYEN, LINH V

ART UNIT	PAPER NUMBER
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2819

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/021,423

Applicant(s)

RAGHAVAN ET AL.

Examiner

Linh V. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |                                                                                                              |                                                                             |
|--------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other:                                          |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 2, 3, 5, 9, 10, 12, 13, 14, 15, 17, and 20 are rejected under 35 U.S.C. 102(e) as being anticipated by Dent et al. U.S. patent No. 6285251.

Regarding to claim 1, Fig. 16 Dent et al. disclose a linearizer for correcting gain compression and phase variation of a radio frequency input signal, said linearizer comprising: a radio frequency (RF) input (1650); a splitter (1602) coupled to said RF input and receiving the RF input signal, said splitter separating said RF input signal into an in-phase (I) signal and a quadrature (Q) signal, wherein said Q signal is delayed ninety degrees behind said I signal (inherency for I and Q); a first variable gain amplifier (VGA) having an adjustable first gain, said first VGA (PA2A) coupled to said splitter and amplifying said I signal to generate an amplified I signal (1622a); a second variable gain amplifier VGA (PA2B) having an adjustable second gain, said second VGA coupled to said splitter and amplifying said Q signal to generate an amplified Q signal (1622B); a RF power detector coupled to said RF input and receiving the RF input signal, said RF power detector generating an RF power signal corresponding to the

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power of the RF input signal (input lines of 1660); a controller (1660) coupled to said RF power detector and receiving said RF power signal, said controller including control logic operative to adjust said adjustable first and second gains to control linearization response (1664a, 1664b); and a summer coupled to said first and second VGAs and summing said amplified I and Q signals to generate a linearized RF output (1630).

Regarding to claim 2, the linearizer for correcting gain compression and phase variation of a radio frequency input signal as recited in claim 1, wherein said splitter comprises a microwave hybrid transformer (1602).

Regarding to claims 3 and 15, the linearizer for correcting gain compression and phase variation of a radio frequency input signal as recited in claim 1, wherein said first VGA comprises a bipolar device (Col. 29 lines 61 – 64).

Regarding to claim 5 and 17, the linearizer for correcting gain compression and phase variation of a radio frequency input signal as recited in claim 1, wherein said second VGA comprises a bipolar device (Col. 29 lines 61 – 64).

Regarding to claim 9, the linearizer for correcting gain compression and phase variation of a radio frequency input signal as recited in claim 1, wherein said RF power detector comprises a diode (Fig. 21[D1,D2]).

Regarding to claim 10, the linearizer for correcting gain compression and phase variation of a radio frequency input signal as recited in claim 1, wherein said RF power detector comprises a logarithmic amplifier (inherently to Dent Fig. 15, 16 for monitor and modulate the output of variable amplifier).

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Regarding to claims 12 and 20, the linearizer for correcting gain compression and phase variation of a radio frequency input signal as recited in claim 1, wherein said controller includes control logic operative to adjust said first and second gains base upon a settable reference signal (input signal of 1660), said settable reference signal corresponding to a set of extrinsic characteristics of a traveling wave tube amplifier (Fig. 16).

Regarding to claim 13, the linearizer for correcting gain compression and phase variation of a radio frequency input signal as recited in claim 1, wherein said summer comprises a resistor (1640).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 4, 6, 11, 16, 18 and 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent et al, in view of Meyer U.S. patent No. 6049,251.

Dent et al as applied to claims 1, 3, 5, 15, and 17 above disclose every aspect of applicant's claimed invention. However Dent et al. does not explicitly disclose in his variable amplifiers and controller having a common-emitter amplifier, and a plurality of bipolar devices respectively.

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Meyer Figs. 1 – 3, discloses a variable gain amplifier with a gain controller (AGC) comprising variable amplifiers and controller having a common-emitter amplifier, and a plurality of bipolar devices respectively.

Dent et al. and Meyer are analogous, because they are related to variable power amplifier circuit, therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the variable amplifier of Dent et al. with the variable amplifier of Meyer for the purpose of providing a very wide dynamic range amplifier with very low noise in the high gain mode and very high input overload in parallel signal path (Meyer, Col. 1 lines 28 – 32).

5. Claims 7, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dent et al. as applied to claim 1 above.

Dent et al. as applied to claim 1 above and further in figure 12, disclose a modifying the over all phase while keeping gain constant, and in figure 20 disclose adjustable gain while keeping phase constant. Therefore Dent disclose every aspect of applicant's claimed invention except for, wherein said first and second adjustable gains are increased equally while keeping phase constant or said first and second adjustable gains are increased differently thereby modifying overall phase while keeping gain constant. It would have been obvious to one having ordinary skill in the art at the time the invention was made to optimum the adjustment values of VGAs for phase or gain constant selection of Dent's amplification system. Since it has been held that

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discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

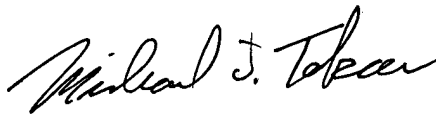
***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (703) 305-1934. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Tokar can be reached at (703) 305-3493. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

LVN

June 19, 2003

  
Michael Tokar  
Supervisory Patent Examiner  
Technology Center 2800